VARIANT IC TEST REPORT

(RSS- 132)

Applicant:	Particle Industries,Inc
Address:	325 9th Street, San Francisco, CA 94103, United States Of America

Manufacturer or Supplier:	Particle Industries,Inc
Address:	325 9th Street, San Francisco, CA 94103, United States Of America
Product:	E Series Module
Brand Name:	Particle
Model Name:	E404X
IC:	20127-E404X
Date of tests:	Mar. 10, 2023 ~ Mar. 24, 2023

The tests have been carried out according to the requirements of the following standard:

☒ **RSS-132 Issue 4, January 31, 2023**
☒ **RSS-Gen Issue 5, Amendment 1, March 2019**
☒ **ANSI C63.26-2015**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
Simon Wang Date: Mar. 24, 2023	Luke Lu Date: Mar. 24, 2023

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22110028RI01	Original release	Dec. 08, 2022
W7L-P23030011RI01	Based on the original product change components and hardware version, it doesn't affect RF Function, The new sample no change data.	Mar. 24, 2023

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: IC RSS-132, RSS-Gen		
STANDARD SECTION RSS-Gen	**TEST TYPE AND LIMIT**	**RESULT**
6.7	Occupied Bandwidth	See Note
6.8	Transmit antenna	See Note
STANDARD SECTION RSS-132	**TEST TYPE AND LIMIT**	**RESULT**
5.3	Frequency Stability AFC Freq. Error vs. Voltage AFC Freq. Error vs. Temperature	See Note
5.4	Maximum Peak Output Power	See Note
5.4	peak-to-average power ratio	See Note
5.5	Band Edge Measurements	See Note
5.5	Conducted Spurious Emissions	See Note
5.5	Radiated Spurious Emissions	See Note
5.6	Receiver Spurious Emissions	See Note

NOTE: Please refer to the original report W7L-P22110028EM02, IC: 20127-E404X.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	E Series Module	
BRAND NAME	Particle	
MODEL NAME	E404X	
NOMINAL VOLTAGE	5.0Vdc(adapter or host equipment) 3.8Vdc (Li-ion, battery)	
MODULATION TYPE	**LTE**	QPSK, 16QAM
FREQUENCY RANGE	**LTE Band 5 (Channel Bandwidth: 1.4MHz)**	824.7MHz ~ 848.3MHz
	LTE Band 5 (Channel Bandwidth: 3MHz)	825.5MHz ~ 847.5MHz
	LTE Band 5 (Channel Bandwidth: 5MHz)	826.5MHz ~ 846.5MHz
	LTE Band 5 (Channel Bandwidth: 10MHz)	829MHz ~ 844MHz
MAX. ERP POWER	**LTE Band 5 (Channel Bandwidth: 1.4MHz)**	316.23mW
	LTE Band 5 (Channel Bandwidth: 3MHz)	314.77mW
	LTE Band 5 (Channel Bandwidth: 5MHz)	316.23mW
	LTE Band 5 (Channel Bandwidth: 10MHz)	319.89mW
EMISSION DESIGNATORGOGN	**LTE Band 5 (Channel Bandwidth: 1.4MHz)**	QPSK: 1M13G7D
		16QAM: 968KW7D
	LTE Band 5 (Channel Bandwidth: 3MHz)	QPSK: 1M13G7D
		16QAM: 968KW7D
	LTE Band 5 (Channel Bandwidth: 5MHz)	QPSK: 1M13G7D
		16QAM: 968KW7D
	LTE Band 5 (Channel Bandwidth: 10MHz)	QPSK: 1M13G7D
		16QAM: 968KW7D
ANTENNA TYPE	External Antenna(KIT) with 2.46dBi gain for LTE B5 External Antenna(Taoglas) with 1dBi gain for LTE B5	
HW VERSION	v1.0.0	
SW VERSION	V4.0.0	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	N/A	

EXTREME TEMPERATURE	-40-75 ℃
EXTREME VOLTAGE	3.3V – 4.3V

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
LTE	1TX/1RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. Sample Information：

Sample Number	Description
Sample 1	Main test Sample(U11:TI - bq24195，U12:Richtek -RT5760CHGH6F)
Sample 2	Based on Sample 1 changed U11 to TI - bq24190
Sample 3	Based on Sample 1 changed U12 to TI - TLV62568
Sample 4	Based on Sample 1 changed U12 to MPS - MP1601GTF-Z

Note：Full testing was performed by sample 1，other samples verified the worst case of RSE, Only the worst case data(Sample 1) was reported.

2.2 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Canada RSS-132, Issue 4, January 31, 2023

Canada RSS-Gen, Issue 5, March 2019 Amendment 1

ANSI C63.26 - 2015

NOTE: All test items have been performed and recorded as per the above standards.

2.3 TRANSMIT ANTENNA

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

Antenna Type	External Antenna(KIT)/ External Antenna (Taoglas)
Antenna Gain	External Antenna(KIT) 2.46 dBi for LTE Band5 External Antenna (Taoglas) 1 dBi for LTE Band5
Impedance	50 Ω

3 INFORMATION ON THE TESTING LABORATORIES

We, BV 7Layers Communications Technology (Shenzhen) Co. Ltd, were founded in 2015 to provide our best service in EMC, Radio, and Telecom. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Shenzhen EMC/RF Lab:
Tel: +86 755 8869 6566
Fax: +86 755 8869 6577

Email: customerservice.sw@bureauveritas.com
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

4 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

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